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A SURVEY OF COOPERATIVE CREAMERIES IN WEST CENTRAL MINNESOTA 1939

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A SURVEY OF COOPERATIVE CREAMERIES IN WEST CENTRAL MINNESOTA

Wm. H. Dankers and E. Baughman

INTRODUCTION

In conducting this survey it was the purpose to determine what adjustments West Central Minnesota cooperative creameries have made to new trends and developments in the dairy industry. Twenty-nine cooperative creameries were included in the survey, located in the ten counties - Douglas, Grant, Wilkin, Traverse, Stevens, Pope, Swift, Lac qui Parle, Yellow Medicine, and Kandiyohi. All of these cooperative creameries are members of the West Central Cooperatives, Inc., a cooperative trucking association that hauls dairy products and supplies for its members. (See page 25.) Particular emphasis was placed on an analysis of the factors affecting the efficiency of the cooperative creameries in this area. The analysis should provide information of value to the managers, officials, members, and patrons of the creameries covered in the survey. Since the problem of many other dairy areas in the state is similar, this information should be of value to those associated with other creameries, particularly in the surrounding territory.

West Central Minnesota's Dairy Industry

The dairy industry in West Central Minnesota seems to have followed the same trend as that of the state and nation. According to Minnesota Annual Crop and Livestock Statistics, there was an increase in the number of cows and heifers, two-years-old and over, kept mainly for milk production, from 1925 to 1934. Numbers declined from 1934 to 1936, but have increased from 1936 to 1938. Trends in dairy cow numbers, amount of milk produced and butter manufactured are shown in Table I.

Table I. Dairy Cows, Milk Production and Butter Manufactured in 10 West Central Minnesota Counties

Year	Dairy Cows*		Milk Produced**		Butter Manufactured	
	No. of Head	% of State Total	Gallons	% of State Total	Pounds	% of State Total
1924	159,300	10.19	59,025,999	8.89	16,562,387	8.47
1929	150,600	10.04	72,968,846	8.84	22,710,644	7.93
1934	159,300	10.10	62,769,639	8.36	19,870,296	7.26
1938	161,500	9.56			24,167,603	8.01

*Minnesota Annual Crop and Livestock Statistics
**U.S. Census

The relative importance of West Central Minnesota as a dairy section has remained about the same since 1924. Approximately 10 per cent of the dairy cows in Minnesota have been maintained in the 10 counties studied. These cows produced approximately 8.3 to 9 per cent of the milk in the state from 1924 to 1934. The drought of 1934 reduced milk production more severely in this area than for the state as a whole. Butter is the leading dairy product manufactured. About 7.25 to 8.5 per cent of the total production of butter in Minnesota was produced in these counties.

Volume of Butter Manufactured

Complete volume records were available for 27 of the plants studied for the period of 1930-1939. The peak in volume manufactured by all of these plants came in 1939 with slightly over eight million pounds. The low point in volume during that period was in the drought year of 1934 with less than five and one-half million pounds. With no increase in the relative importance of dairying in this area, from

the volume and patronage records available during this period, it appears that cooperative creameries are increasing their volume of business while the volume of other buying agencies is decreasing. Variations in volume of butter manufactured by individual plants, by all plants, average per plant and indexes of production are shown in Table II.

The volume manufactured per plant in this area in 1939 (308,741 pounds) is considerably below the volume per creamery for the state as a whole which in 1939 was 350,206 pounds.(1)

ORGANIZATION STRUCTURE AND COOPERATIVE CHARACTER OF CREAMERIES

The cooperative creamery business is relatively new in this area compared to areas in Southern Minnesota. Of the 29 cooperative creameries studied only two were organized by 1900. Three were organized during 1901-1910, 14 during 1911-1920, nine during 1921-1930 and only one in the last decade in 1934. Special interest seems to have prevailed during certain periods in that six creameries were organized during 1911-1913 and again five during the year 1919.

It appears that there is little consistency regarding the amount of outstanding capital stock which varied from a low figure of $510 to a high figure of $16,030. Two organizations had less than $1,000, 14 had $1,000-$4,999, (the most frequent figure), nine had $5,000-$9,999, and four had over $10,000. One organization with a total capital stock of about $10,000 had nearly half of it in preferred stock. Two other creameries had smaller amounts of preferred stock outstanding. Considerable uniformity prevails in the price at which shares are sold, in that 12 creameries issued shares at $10 each, and another 11 at $5, leaving only six creameries out of the total with different figures. The extremes were par values of $1 in one case and $100 in another.

Twenty-one out of the 29 cooperative creameries have the policy of limiting the sale of shares to producers of milk or cream in the community. Of interest are the methods of payment for shares of stock. Some use three methods, namely, cash, deductions from the butterfat account, and the application of a patronage dividend. In the aggregate 23 sold shares for cash, 11 made butterfat deductions and applied it, and 19 out of the 29 applied patronage dividends. Because the patronage dividend method is commonly used, some of the creameries showed large stock credit accounts which in one case amounted to over six thousand dollars. These amounts are larger where the par value of stock is high. The patronage dividend method might well be used by more Minnesota cooperative creameries so as to keep the ownership of the cooperative in the hands of the people patronizing it. Nineteen indicated that non-patron stockholding was not a problem, while 10 reported it was. Some of the 10 could relieve this problem by adopting the patronage dividend method in issuing new shares of stock. Some would still have a problem even though they used this method. This is due to, either having a very small patronage dividend to apply, or that shares for those who become non-producers are not retired.

It was difficult to determine what policy is followed in retiring shares of stock. Some indicated that they did not have a policy while several others left it to the discretion of the board of directors. Ten bought back stock from holders only when they moved away. Such a policy usually leaves a large number of resident non-patron stockholders. To the extent that cooperative creameries are at all financially able, the desirable policy is to retire stock for holders soon after they have become non-producers.

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(1) Department of Agriculture, Dairy and Food - St. Paul, Minnesota: "Minnesota Bulletin of Information on Creameries, Cheese and Ice Cream Factories, Milk Plants, Canneries and Bottlers" - 1939

Table II. Pounds of Butter Manufactured by Selected West Central Minnesota Creameries, 1930-1939

Year	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	No. 10	No. 11	No. 12	No. 13
1930	467,420	226,557	173,112	347,623	140,360	224,340	174,620	214,661	224,650	204,603	95,588	301,254
1931	495,907	238,024	180,398	353,352	143,458	246,462	142,461	213,720	234,484	356,029	142,625	299,057
1932	505,272	203,453	152,460	363,808	131,886	242,035	160,733	242,363	210,533	146,972	130,686	285,583
1933	468,980	174,613	209,948	342,268	137,535	197,842	196,060	283,900	255,754	195,163	114,611	237,824
1934	392,879	142,086	175,255	283,975	107,814	165,805	189,669	215,537	164,749	161,432	90,770	219,765
1935	222,659	180,272	196,561	205,706	99,093	198,504	252,391	216,778	157,607	166,349	100,899	185,747
1936	463,785	152,387	199,650	246,041	117,989	257,313	297,178	237,029	239,339	197,429	113,631	189,411
1937	430,470	152,779	195,549	270,581	116,269	296,307	283,635	198,245	235,476	176,886	111,255	201,244
1938	499,511	199,455	248,049	330,687	122,236	388,154	316,704	193,602	260,061	225,865	130,923	217,003
1939	484,444	215,214	237,235	344,614	116,545	404,344	288,175	194,038	212,941	231,198	142,300	245,589

Year	No. 14	No. 15	No. 16	No. 17	No. 18	No. 19	No. 20	No. 21	No. 22	No. 24	No. 25	No. 26
1930	214,964	387,624	247,425	180,013	174,868	259,194	410,258	314,221	232,613	138,445	254,750	360,763
1931	216,462	378,255	278,459	179,012	200,328	251,148	403,938	307,894	246,524	128,799	273,827	371,056
1932	209,485	333,249	273,534	166,772	205,716	197,546	428,400	301,326	268,893	127,949	268,680	349,405
1933	190,861	290,164	255,548	187,733	175,210	227,933	479,881	352,506	291,893	155,029	301,460	371,457
1934	132,954	258,765	179,008	158,022	133,902	216,648	253,629	390,003	251,567	115,857	199,800	277,054
1935	151,945	323,589	232,899	180,051	149,358	203,538	300,895	448,148	258,448	121,371	204,236	286,525
1936	179,839	344,241	268,026	248,346	211,496	255,830	376,567	541,962	312,758	126,641	201,026	428,254
1937	181,380	370,476	314,552	246,270	179,816	248,922	377,201	550,029	307,956	125,456	183,685	376,384
1938	189,299	466,770	383,158	281,964	281,317	285,075	414,829	589,106	354,311	164,207	204,562	496,148
1939	189,525	500,889	393,677	328,508	312,714	273,848	457,972	600,309	351,867	182,363	269,510	452,266

Year	No. 27	No. 28	No. 29	Total Volume Manufactured by 27 Plants	Average Volume per Plant	Index - 10 year Average Volume per Plant (252,940) = 100
1930	258,599	346,404	183,986	6,758,915	250,336	99.0
1931	218,147	374,878	201,388	7,076,092	262,083	103.6
1932	236,842	321,587	195,870	6,661,038	246,711	97.5
1933	173,216	312,409	209,710	6,789,508	251,469	99.4
1934	142,279	228,938	181,042	5,429,204	201,086	79.5
1935	142,633	180,386	205,123	5,571,711	206,364	81.6
1936	210,686	287,289	241,548	6,945,691	257,253	101.7
1937	218,824	267,747	227,107	6,844,611	253,510	100.2
1938	258,657	258,967	264,986	8,025,606	297,251	117.5
1939	255,456	230,722	273,323	8,190,086	303,337	119.9

Thirteen organizations paid patronage dividends in 1939. This dividend was usually expressed on the basis of a pound of butterfat rather than in percentage of value of business done. Of the 13, one paid one-third of a cent per pound, another forty-two one hundredths, four paid one-half, two paid one, two one and one-half, one paid two, one two and one-fourth, and another paid three per cent (approximately one cent per pound of butterfat). Of the 13 organizations paying patronage dividends in 1939, 11 also paid such dividends in 1938 out of a total of 12, and seven of them in 1937 out of a total of nine.

Nineteen paid dividends on capital stock in 1939, and 18 in 1938, out of the total of 29. In 1939 one paid seven per cent, nine paid six per cent (the most common figure), three paid five, four paid four, two paid three per cent, and 10 paid no stock dividends. One of the organizations paying six per cent on common stock paid five per cent on the preferred stock issued by it. The maximum dividend which may be paid on stock is specified in the Articles of Incorporation and is limited by law to six per cent. How much less the declared dividend shall be from the maximum rests with the Board of Directors. A high stock dividend is an incentive for non-producer stockholders to continue to hold their shares, whereas a lower rate makes it easier to get the ownership into the hands of producers, which is essential in order to meet the federal and state requirements for certain tax exemptions.

To be legally classified as a cooperative association it is necessary to comply with certain state and federal laws. Briefly the requirements are:

1. One vote per member - proxy voting prohibited.

2. Dividends on stock not to exceed eight per cent - in 1933 this was changed to six per cent, so that all organizations incorporated in Minnesota since that date or having renewed their charters under the cooperative laws of 1923 - Chap. 326 - are limited to the lower figure.

3. A limitation on the amount of capital stock ($1000) to be held by an individual stockholder.

4. Shares of stock to be transferable only with approval of the governing board of the association.

5. Net income, not set aside as a reserve fund or permanent surplus, to be distributed on the basis of patronage.

6. Stockholders or members to consist of agricultural producers - associations with as many as 10 per cent non-producers are considered as not being in compliance with the federal law.

7. Business transacted with non-members shall not be greater in value than that handled by it for members.

(For further details see Pamphlet No. 61.[1])

Under the federal and state laws cooperatives are exempt from the corporation income tax, only when they fully comply with these requirements. The Bank for Cooperatives likewise allows loans only with such provisions.

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(1) Wm. H. Dankers - "Some Legal Requirements of Cooperative Organization" - Pamphlet No. 61 - Agricultural Extension Division, University of Minnesota.

The cooperative creameries in West Central Minnesota are experiencing difficulty in complying with some of these requirements. One creamery reported that only one-third of the butterfat was purchased from members and another reported about 40 per cent. Three were exactly at the halfway mark and a number of others only slightly over. Another serious problem seems to be that of keeping the ownership of the association in the hands of the patrons. Due to competition, financial stress, or a mere oversight on the part of the Board of Directors, stock is not retired when former patrons leave the community, retire, or discontinue their dairy enterprise. In 18 of the 29 creameries 90 per cent or more of the stock was held by patrons - thus within federal and state requirements. In five cases the percentage ranged from 70 to 89, and six had less than 70 per cent of the stock in the hands of producers. One of the six reported a percentage of patron stockholders considerably below 50. Generally speaking, the cooperative creameries in this area are making effort to remedy this situation largely in the way of applying patronage dividends on shares of stock so that non-stockholder patrons will in time automatically become stockholders. A number of the 18 following this policy now above the 90 per cent mark were considerably below only a few years ago. Those now below 90 per cent could in many cases well adopt a similar policy. Such a policy needs to be further supplemented with a policy of retiring shares as soon as possible when shareholders become non-producers and no longer market their products through the organization. In a limited number of cases it also would appear desirable to cut down the par value of shares from the relatively high figure at which it now stands so as to make them more attractive to the non-shareholder patrons.

In 1939 three creameries of the creameries surveyed and in 1938 seven creameries paid a federal or state income tax. This outlay could well have been avoided and total costs reduced if the organization had been brought in line with federal and state requirements for cooperatives. In addition to the three paying federal income tax five others were subject to such a tax but had no earnings in 1939. As indicated by the percentage of non-producer shareholders and by the high percentage of non-member business done, a large number of the cooperative creameries in this area, as is the case for the state as a whole, are not organized so as to be exempt from federal or state income tax. A number of the creameries were not assessed a tax because they had been exempted a few years ago and had not been reviewed since. Proof for exemption rests with the cooperative. The need for action in making these cooperative creameries comply with state and federal requirements for cooperatives is very evident.

Management

Twenty-one of the 29 cooperatives have seven directors, one has nine, two have six and five have five. In 18 associations the directors are elected for three years, in three for two years, in five for one year and in three associations the term varies for the different directors. It appears that associations having irregular provisions for electing directors might well amend their by-laws so as to adopt a system less complicated, and one more easily understood by the patrons. From records available regarding the length of service given by directors, it was found that the average period is over seven and one-half years, excluding the secretary, or slightly over eight years for all directors. Experience in directing cooperatives cannot be overlooked; however, the question needs to be raised as to the desirability of rotating the directorship more frequently with an aim of developing new interest and having more members share responsibility in the cooperative. The desirable practice of having officers selected by the board of directors rather than by the stockholders was followed by 25 of the 29 creameries. Such procedure greatly simplifies elections at stockholders' meetings since only the required number of directors need to be elected without special designation.

The secretary is a member of the Board of Directors in 27 out of the 29 creameries. Of interest is the average period of service given by the secretaries now in office which averages approximately 11 years. In organizations where the main creamery records are kept by a special bookkeeper the question may well be raised, as with other directors, regarding the advisability of rotating this responsibility more frequently.

All organizations provided their patrons with a printed or mimeographed annual report. This is an indispensable tool in keeping the membership informed and might well be supplemented by other informational material during the year.

FINANCING

Capital Requirements

According to Table III the average amount of capital required by the 29 plants in this area was approximately $27,000. This is slightly below the average capital requirements for 144 creameries in Minnesota from which records are available, but considerably above that of the creameries in the older southeastern Minnesota dairy region.(1) In a number of these organizations the capital requirement is increased considerably because of the sidelines carried, particularly if cold storage lockers have been installed. In a few cases considerable capital is required to operate the egg and poultry sideline. The total assets of individual plants varied from $7,227 to $76,973.

Of the total assets of these creameries 68 per cent were invested in fixed assets in the form of land, buildings and equipment. Buildings at their net or depreciated value constituted 41 per cent of all assets. The most highly valued creamery buildings in the area studied were carried on the books at a net value of over $31,000. Some creameries are overbuilt with the consequent result of poor plant utilization and higher operating costs.

The net depreciated value of the equipment in these plants constituted 23 per cent of the total capital. It will be observed that this equipment is carried at only slightly more than half of its original value, which indicates a relatively high degree of depreciation. In a number of plants there is great need of replacements.

The operating capital of these creameries including cash, receivables, and inventories, represented 25.5 per cent of the total capital or $6,867 per creamery (Table III). Cash constituted 8.0 per cent of all assets. Shipping accounts receivable (4.7 per cent) included amounts due from agencies to which butter was shipped. Local and other accounts receivable (4.9 per cent) included amounts due from local retailers and non-patron consumers. Patron accounts receivable (1.3 per cent) included the patron overdrafts arising either through excess cash advances by the creamery or through an unpaid balance on the purchase of patron supplies in excess of the butterfat account.

Sources of Capital

Of the total capital of these creameries, $10,081 per plant or 37.5 per cent was provided by creditors and 16,828 or 62.5 per cent by the members of the associations (see Table IV). Since 11.4 per cent of the capital represented amounts owed

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(1) Wm. H. Dankers and E. F. Koller - "A Survey of Cooperative Creameries in Houston County" - Pamphlet No. 62 - page 5 - November, 1939.

Table III. Asset Values of Twenty-Nine West Central Minnesota Cooperative Creameries as of December 31, 1939

		West Central Minn. Creameries		Your Creamery	
		Average value	% of total value	Average value	% of total value
Current Assets:					
Cash		$2150.82	8.00		
Accounts Receivable-Local and others		1330.14	4.94		
Accounts Receivable-Patrons		345.07	1.28		
Accounts Receivable-Shipping		1265.05	4.70		
Butter Inventory		280.45	1.04		
Other Products Inventory		479.68	1.78		
Supplies Inventory		888.28	3.30		
Prepaid Expenses		127.73	.48		
Total Current Assets		$6867.22	25.52		
Investment Assets:					
Certificates of Indebtedness, etc.		$507.96	1.89		
Stocks, Bonds, etc.		1145.55	4.26		
Total Investment Assets		$1653.51	6.15		
Fixed Assets:					
Land		$794.95	2.95		
Buildings	$13773.46				
Res. for Deprec.-Bldgs.	2757.10				
Buildings (Net)		11016.36	40.94		
Machinery & Equipment	$11284.09				
Res. for Deprec.-M. & E.	5098.29				
Mach. & Equip. (Net)		6185.80	22.99		
Office Equipment	$420.67				
Res. for Deprec.-O. E.	233.59				
Office Equip. (Net)		187.08	.69		
Total Fixed Assets		$18184.19	67.57		
Other Assets:					
Cash in Closed Banks		$111.30	.41		
Other Miscellaneous		92.84	.35		
Total Other Assets		$204.14	.76		
Total All Assets:		$26909.06	100.00		

Table IV. Liability and Net Worth Values of Twenty-Nine West Central Minnesota Creameries as of December 31, 1939

	West Central Minn. Creameries		Your Creamery	
	Average value	% of total value	Average value	% of total value
Current Liabilities:				
Accounts Payable-Patrons	$3079.63	11.44		
Accounts Payable-General	556.18	2.07		
Short-Term Notes Payable	402.69	1.49		
Accrued Expenses	871.09	3.24		
Total Current Liabilities	$4909.59	18.24		
Fixed Liabilities:				
Mortgages, Bonds and Long-Term Notes Payable	$5171.37	19.22		
Total Liabilities	$10080.96	37.46		
Net Worth:				
Capital Stock Outstanding	$5412.57	20.11		
Stock Credits	308.76	1.15		
Surplus	9702.18	36.06		
Reserves	388.71	1.44		
1939 Earnings	1015.88	3.78		
Total Net Worth	$16828.10	62.54		
Total Liabilities and Net Worth:	$26909.06	100.00		

patrons on account, and since the largest proportion of patrons were also members, this amount may be considered as capital provided by members. This would bring the patron-member contributions to capital to 73.9 per cent of the total or $19,908 per creamery.

As shown in Table IV the average amount of capital provided by creditors on the basis of short-term notes is $403. Borrowing on the basis of mortgages and long-term notes provided a larger amount of capital and averaged $5,171 per plant or 19.2 per cent of all capital.

Seven creameries out of the 29 are entirely out of debt, while the indebtedness of the others ranges from $700 to over $25,000. In only one case was it reported that a special deduction was made to provide for mortgage payments. Where deductions for operating expenses have been made liberally a balance has been available for paying off debts. One organization attempts to meet mortgage payments out of earnings on sidelines. Those borrowing from the Bank for Cooperatives are required to make a monthly repayment amounting to two per cent of gross sales. Such a definite policy seems desirable since in a considerable number of cases debts have been paid off more slowly than appears desirable.

Capital Provided by Members

In Table IV is shown clearly that members have furnished the largest proportion of the capital of these associations through the purchase of stock and the creation of surplus and net worth reserves.

Slightly over 20 per cent of the capital or an average of $5,413 per association was obtained from the sale of capital stock. Stock credits arising out of the application of patronage refunds on shares of stock are common in this area, averaging $309 per creamery and constituting slightly over one per cent of the capital.

For the amount of capital stock outstanding the capital provided from surplus in these creameries is large, amounting to $9,702 per creamery or 36 per cent of the total capital. This amount has been provided through butterfat deductions and earnings from the business which have not been allocated to the credit of member capital accounts. A smaller amount of $389 per creamery or 1.4 per cent of the total capital was available from reserve accounts. Special reserve accounts may be encouraged especially in the way of "patrons equity reserves". This will improve the financial situation of the organization and will assist in lowering the surplus account, necessary to comply with federal and state requirements. The Minnesota Cooperative law provides that the surplus may be 50 per cent of the outstanding capital stock, and if so provided in the by-laws of the association, may be equal to the outstanding stock. With an average surplus per creamery of $9,702 and outstanding capital stock of $5,413, the resulting ratio of 1.8 is considerably too high. This problem needs the immediate attention of a considerable number of creameries in the area.

Financial Ratios

The current ratio, which is the ratio of current assets to current liabilities and which is a commonly used indicator of the current solvency of a business, is quite favorable for this group of creameries. A cooperative creamery should have current assets at least equal to current liabilities, and a current ratio of two to one is recommended. The average ratio of current assets to liabilities for all creameries is 1.4. In five cases the current ratio was below a one to one relationship indicating a pressing shortage of working capital and limited debt paying ability. In one case the current liabilities were more than twice that of current assets. The low current ratio is the result of a highly competitive situation in some cases, and due in general to poor financial direction. Such a situation should be corrected since it is costly and generally unsound.

PATRONAGE AND VOLUME OF BUSINESS

The efficiency of a creamery is highly dependent upon its volume of business. It is a well-known principle that as the volume of production is increased to the point of maximum capacity of plant, labor and management, the per unit costs of operation tend to decline. The drought periods of 1934 and 1936 have distorted the picture materially; however, it appears that a considerable number of the cooperative creameries in the West Central Minnesota area have gained considerable volume, particularly in the last five years. The volume of others has declined. Many of the organizations do not have a chance of expanding their volume to a point of maximum capacity under present circumstances. Important operating gains and lower costs per unit could be obtained if the volume per plant could be increased.

Factors Making for a Change in Supply

The supply of butterfat available for a particular creamery is, generally speaking, determined in two ways:

1. The amount of butterfat produced in a specific territory.

2. The patronage that such a creamery can get from that territory. This depends on the interest of producers in the cooperative creamery, competing butterfat buyers, assembly methods, butterfat buying policies, sideline and special services, location of main trading center and prices paid for butterfat.

Patronage Relationships

In 1939 the total number of regular patrons for the 29 creameries in this area was 6,248 or an average of 215. The patronage per plant in this area is considerably above the average for the state even though the volume of butter manufactured is considerably less. This indicates that the volume of cream delivered per person is less. The range in patronage was from 81 to 600 patrons. The average distance that West Central Minnesota cooperative creamery patrons live from their creamery was reported to be approximately six miles. The maximum distance for all creameries averaged 13 miles. The number of stockholder patrons in the 29 cooperatives was 4,130 which is 66 per cent of the total number of patrons. One creamery had more non-shareholder than shareholder patrons, which presents a serious problem. (See page 4, section 7.) All cooperative creameries should make every effort to hold the per cent of shareholder patrons at a high figure.

Assembly Methods and Competition

Cream deliveries to creameries are made less frequently in this area than in most areas of the state.(1) The common practice is three deliveries per week in summer (followed by 17 out of the 29 creameries) and two in winter (followed by 15 out of the 29). Ten creameries receive part of all of their cream only twice per week even in the summer. Only two creameries obtain part of their cream as often as four times per week. The relatively low volume of cream per patron is the main reason for the practice of less frequent deliveries. The hauling cost per pound will increase with more frequent delivery; however, it appears that a considerable number of the creameries should aim in that direction and offset the increased cost of hauling with increased returns resulting from a higher quality product.

Of the total amount of cream received by the 29 creameries the larger amount, 70 per cent, was delivered by the patrons themselves (62 per cent by individual patrons and 8 per cent by patrons hauling in a group). The volume delivered on privately owned trucks amounted to 18 per cent and that hauled in by creamery owned trucks was 12 per cent.

Even though the major portion of the cream in 1939 was delivered at the creamery directly by the patron, 26 out of the 29 creameries are trucking in some cream. Three had started in 1940 and out of the three not trucking one was planning to start soon. The variation in the truck routes is indicated by the range in total mileage per route from 10 to 110 miles, and in the number of truck routes per creamery, ranging from one to six. The average number of routes per creamery is about two and one-half and the average length per route is 52 miles. Although a number of operators indicated that they would prefer having all cream delivered directly by the patrons, there seemed to be a definite feeling that truck routes are necessary. The reasons given were:

1. It prevents the loss of patrons who would otherwise sell to neighboring creameries that do provide truck service (in many cases this is competition between cooperative creameries).

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(1) Wm. H. Dankers and E. F. Koller, "A Survey of Cooperative Creameries in Watonwan County", Mimeographed Pamphlet No. 54 - Agricultural Extension Div.,Univ. of Minn.

2. It provides a means of meeting the competition from centralizers and packers who operate trucks in the area.

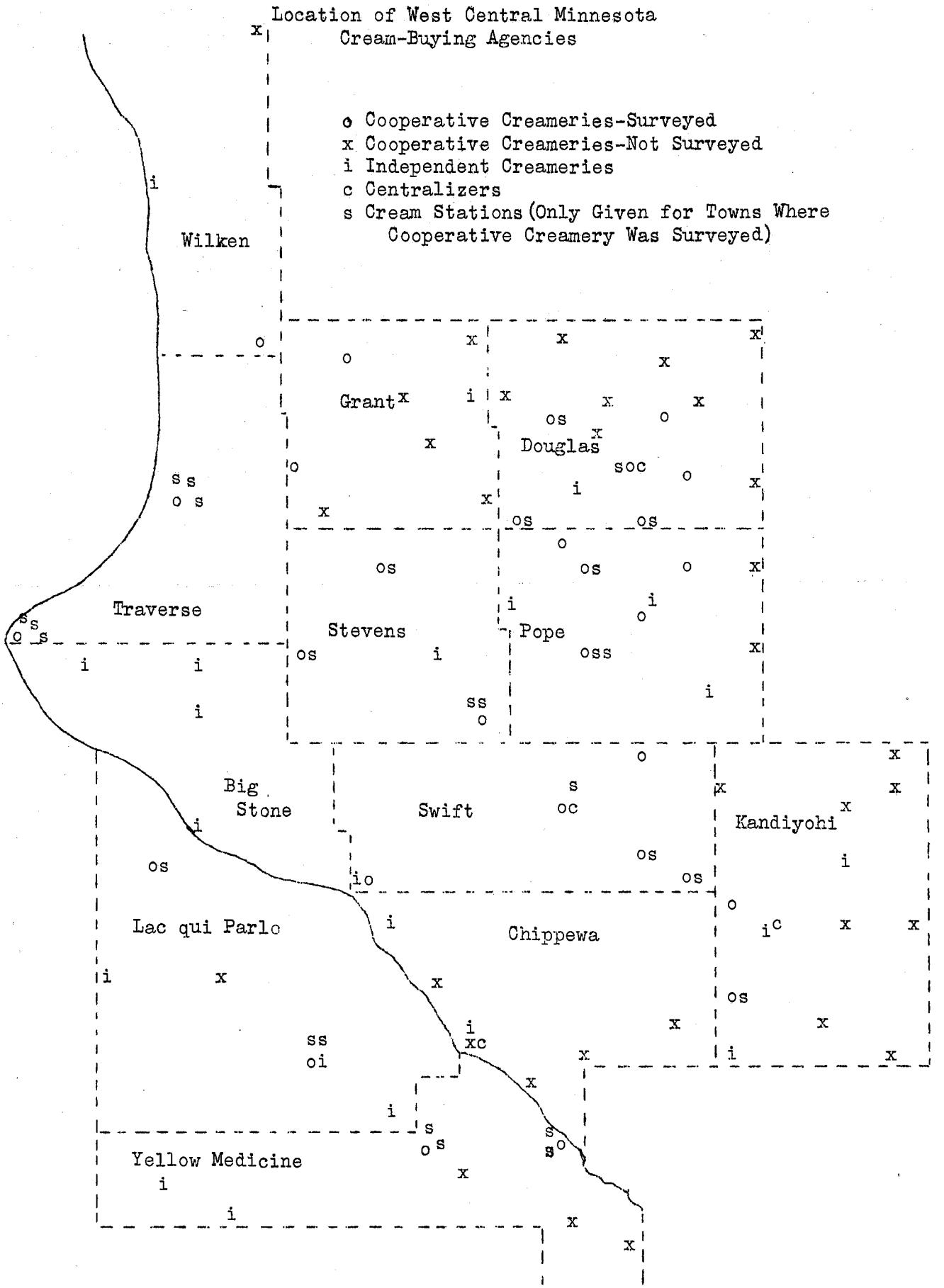
3. Patrons want the service.

Nine creameries owned their trucks and two of these also hired private haulers. Of the 20 creameries that hired private truckers, 11 paid haulers two cents per pound of butterfat, three paid one and one-half cents, and five paid one cent. In all cases, regardless of what rate was paid the hauler, a one cent deduction was made from the patron's butterfat account as a charge for hauling. In some cases this deduction was equal to the rate paid the hauler which is the most equitable way of handling the procurement account. In those cases where one and one-half cents or two cents per pound were paid the hauler, the one-half cent and one cent respectively were charged as general operating expense. This gives an advantage to patrons in a less accessible location and penalizes those more favorably located. Most of the creameries owning trucks for procuring cream made a one cent deduction from the patron's account for hauling. In three cases, however, such trucking service was provided free of charge. Any accounting procedure wherein trucking costs, whether for private trucks or a creamery-owned truck, are not deducted directly from the patron's butterfat account but instead are charged to general operating expense, provides for a considerable disadvantage in the comparative net price that can be quoted producers.

There was some feeling that it is more difficult to maintain quality during the summer when cream is hauled in a truck over the route. The quality problem has arisen and will become more severe as the result of an attempt to solve another problem, that of meeting competition and giving additional service. It needs careful consideration for solution at the present time, particularly in an area such as West Central Minnesota where deliveries of cream are made less frequently and where the quality is relatively lower than in many other areas of Minnesota.

It was indicated in a number of cases that there was considerable competition, not only from private organizations but, also from other cooperative creameries. Although not as severe for the area in general as in other parts of the state, it is severe and quite evident in a number of counties. This is due to the unused plant capacity of most plants, and to the improvement of roads which has resulted in lower procurement costs from more distant areas. Competition varies to a considerable degree with the proximity of creameries in a certain cow population area. The location of cream-buying agencies in West Central Minnesota and their proximity are given in Figure 1. The proximity of creameries in West Central Minnesota is notably different from the northeast section of Douglas and Pope counties to the southwest section of Lac qui Parle and Yellow Medicine counties. The three closest competitors (not in the local town) for the creameries in Douglas and Pope counties are on the average only seven and one-half miles away compared to an average distance of over 13 miles in Lac qui Parle and Yellow Medicine counties. With improvement in roads and better methods of procurement, it is evident that there are more plants than can be efficiently maintained in some sections of this area. No specific information was obtained on the number of truck routes for hauling cream or the degree of overlapping. It appears, however, that in some parts of this area this competition is fully as keen as in other areas of Minnesota. When it is observed that a number of organizations follow the same road with their trucks and in some cases backtrack on that same road, the wastes and high procurement costs of such a system become evident. Since the producers' price is the consumers' price minus marketing costs, such expensive methods eventually result in lower butterfat returns to the producer. The only way to avoid such duplication of services and outside competition is to develop greater efficiency in the marketing system within these sections. Adjustments that will allow for large-volume production, full utilization of plant capacity, and lowered costs are needed. A failure to make intelligent and well-planned re-adjustments in

Figure 1.


Location of West Central Minnesota
Cream-Buying Agencies
o Cooperative Creameries-Surveyed
x Cooperative Creameries-Not Surveyed
i Independent Creameries
c Centralizers
s Cream Stations (Only Given for Towns Where
Cooperative Creamery Was Surveyed)
Wilken
Grant
Douglas
Traverse
Stevens
Pope
Big
Stone
Swift
Kandiyohi
Lac qui Parle
Chippewa
Yellow Medicine

these sections may result in further competition between cooperatives and from private operators, an expansion of truck routes and further overlapping, a further reduction in volume manufactured by some plants operating in the area, a further jeopardizing of efficiency in these plants and a lower net price to many of the butterfat producers in the area.

Butterfat-Buying Policies

Six cooperative creameries out of the 29 use the cream station method and buy cream for cash only. Of the remaining 23 making settlements on a pool basis, 20 were buying some cream for cash. For pool settlements the monthly pool is most common and is used by 15 creameries. The other eight use a bi-monthly pool. Of the 15 on a monthly basis, nine made settlement on the twentieth of the month for the previous month's pool, while two paid a few days earlier and four delayed payment a few days longer. Of the eight on a bi-monthly basis three paid on the tenth for the previous month's 1-15 pool, and on the twenty-fifth for the 16-end of month pool. Three others paid five days earlier and one other five days later. One of the eight approached the cash purchase method in making settlements on the closing day of the pool period (15th and end of month) instead of in the following month.

All creameries making settlement on a pool basis made cash advances. With a few exceptions, the limit to such advances was placed at 100 per cent of the approximate value of the cream. Regardless of the limit it was almost unanimously reported that such advances frequently exceeded the 100 per cent figure. In general, it seems that the amount of such allowances has been rather arbitrarily determined, usually by the operator, depending somewhat upon the security of the individual making the request. The general opinion seemed to be that cash advances were burdensome because of the extra clerical cost involved, and the necessity of having a larger amount of operating capital. However, the opinion was unanimous that such procedures are necessary in order to meet competition of other buyers offering more immediate settlement. This problem should raise the question to those organizations on a monthly pool basis as to whether more frequent settlement might not aid in limiting the requests for cash advances, and to all organizations the question as to the possibility of making settlement earlier following the close of the pool period. Cash advances made too liberally will eventually jeopardize the effective operation of a cooperative organization. That it is becoming a serious problem in West Central Minnesota is indicated in that the patrons' accounts receivable at the end of 1939 averaged $345 per creamery. Through such operations the creamery assists in financing individual farm businesses, a purpose for which it is not established and a business which it should not undertake. When such overdrafts become "non-collectible" which is reported to be the status of a large percentage of the total in this area, the remaining patrons must bear the loss in lower butterfat returns. In one case an amount of $1500 was reported "non-collectible" out of a still much larger amount in patrons' accounts receivable.

A problem encountered is that of distributing equitably the cost of operations to the product handled in the pool period. The allocation of certain costs such as taxes, insurance, management, and depreciation makes this problem even more difficult. In all cases these creameries followed the correct procedure of distributing expenses more or less over the period during which the materials and equipment were to be used. There is some lack of uniformity, however, in methods of determining the price to be paid patrons for butterfat. In 15 out of the 23 making pool settlements, the average total cost of manufacturing a pound of butter for the previous year is used as a flat rate for covering expenses during the pool period. Three of these 15 supplement this by a special "sinking fund" deduction. The flat rate deductions vary from two and one-half to four cents. In five creameries specific items of cost for the month are deducted, plus an amount for non-specific items (taxes, insurance, depreciation, etc.) based on average monthly costs for the previous year, plus a

sinking fund in some cases to cover mortgage payments or other items. The price paid for butterfat in all cases is quoted in full cents, which frequently leaves a slight margin for expenses or for a special sinking fund over the flat rate deduction that has been made. It is evident that some boards of directors have "shaved" down the non-specific expenses at time, in an attempt to meet competition. In a number of cases the allowance made for depreciation of buildings and equipment is not equal to the actual depreciation incurred.

The cash price for butterfat varies greatly from one creamery to another, but generally is based on the price of N.Y. extras butter, with a variation in the differential as the market price goes up or down.

In 14 creameries the price difference between Sweet and No. 1 cream is two cents while in another 14 it is only one cent. One creamery had a spread of three cents. In 15 creameries the Sweet and No. 1 cream is churned separately throughout the year, in two creameries during the winter but not in summer, and in 12 creameries it is churned together at all times. Five creameries reported that they were not getting No. 2 cream. In 12 creameries the price difference between No. 1 and No. 2 is two cents while in another 12 it is only one cent. Six reported that they shipped their No. 2 cream. Thirteen churned it with No. 1 and only five churned it separately. One creamery refuses to accept "bad" No. 2 cream while two others dump it. Because about half of the creameries in West Central Minnesota do not churn the Sweet and No. 1 cream separately, and the No. 2 cream is mixed in, the quality of cream in one churning varies in those cases from Sweet cream to No. 2. To the extent that the quality of butter is reduced by such procedure, and net returns lowered, the producer of a higher quality product does not receive full compensation for his efforts.

MEASUREMENT OF CREAMERY EFFICIENCY

Patrons of a cooperative creamery usually measure the general economic efficiency of their organization by the price which it pays for butterfat. These payments are not always a reliable measure, however, because some creameries pay their patrons more than is warranted by their annual receipts, while others retain considerable amounts for capital expansion. The measure of general economic efficiency used in this study, therefore, is the net return available for the payment of each pound of butterfat handled. This figure, or index of general economic efficiency, was determined by taking the actual payments made to farmers for butterfat, adding to these payments any cream-hauling charges absorbed by the creamery, and then adding the net gain (or subtracting the net loss) reported for the year in the adjusted operating statement. In this form the index indicates what the creamery could have paid per pound of butterfat delivered at the plant without affecting the amount of its net worth in either direction.

What a creamery can pay for butterfat is determined mainly by the efficiency of its (a) manufacturing and (b) marketing operations. The most satisfactory measure of creamery manufacturing efficiency is the cost of manufacture per pound of butter made. The efficiency of the marketing operations of a creamery is reflected by the net price received per pound of butter sold.

MANUFACTURING OPERATIONS

Labor and Management

Differences in the manufacturing efficiency of creamery plants depend to a large extent upon variations in the administration of labor and management. Labor and management costs in West Central Minnesota creameries represent 32.4 per cent of all operating costs in 1939. With a total operating cost of 2.804 cents per pound of butter manufactured, the average labor cost of these creameries was 0.908 cents.

(Table V) This is somewhat higher than the average per unit labor cost of 0.875 cents in 173 cooperative creameries selected from all parts of the state. It is also a little higher than the average labor costs of 0.886 cents per pound in cooperative creameries in Southeast Minnesota.

There is considerable variation in the labor costs of individual creameries because of the widely varying conditions under which they operate. In the 29 plants studied, per unit labor costs ranged from a low of 0.617 cents to a high of 1.505 cents per pound of butter made.

Some of the more important factors responsible for these labor cost variations are:

1. Differences in the volume of output.
2. Differences in the amount of labor employed and its output.
3. Differences in the rate of wages paid employees.

There is a tendency for plants of small volume to have a higher per unit labor cost. The 10 plants with highest per unit labor costs had an average output of 233,231 pounds of butter; the next 10 plants in line made an average of 333,096 pounds, and the nine plants with lowest per unit labor costs made an average volume of 365,471 pounds. The individual plant reporting lowest per unit labor costs made over 480,000 pounds of butter while highest labor costs were reported in a plant which made less than 275,000 pounds.

Wages paid operators ranged from a low of $1,200 to a high of over three times that amount. Variations in capabilities of operators and amount of responsibility assumed by them justify a large part of the variation in wages paid them. Monthly wages of first helpers range from $50 to $120 per month. This range can also be partially justified on the basis of variations in work done and responsibility assumed by first helpers in different plants.

Creamery operators in the area are paid according to three principal methods:

1. Straight salary.
2. A salary with a commission based on output.
3. Commission based on output.

Six operators were paid on straight salary basis. Twenty were employed on a salary and commission plan and three worked for commission only. The type of salary plan used varied considerably. One hundred dollars per month plus one per cent of gross sales were used most frequently. Thirteen plants furnished the operator with free butter, 12 with cream, five with milk and two with a house.

Creamery Manufacturing Expense

Variations in manufacturing expenses, other than labor, account for a large proportion of the variation in total per unit operating costs of creameries in West Central Minnesota. The average of these expenses which include packing supplies, general supplies, fuel, salt, power, light, water, refrigeration, social security taxes, local taxes, insurance, repairs, and depreciation on buildings, machinery and equipment is 1.466 cents per pound of butter manufactured or 52.2 per cent of total operating costs. (Table V) Manufacturing expense for individual creameries ranged from a low of 0.817 cents to a high of 2.593 cents, a spread of over 1.75 cents. The per unit manufacturing expense in this area is somewhat above the average figure, 1.377 cents, for 173 creameries from all parts of the state.

An important factor accounting for the variation in manufacturing expense of these plants is the difference in volume of output. The 10 plants with the highest volume of butter had average manufacturing costs of 1.290 cents per pound, as

compared with an average of 1.688 cents for the 10 plants with the smallest volume. This represents a difference of nearly one-half cent per pound. By examining the various component elements of manufacturing expense, some of the factors contributing to these variations may be pointed out.

Supplies--The per unit outlay for packing supplies varied from 0.054 cents to 0.589 cents per pound. (Table V) The kind of container used in shipping butter explains some of the variations in packing expense. Tubs were used by seven creameries, boxes by 18, baskets by four, and both boxes and baskets by one. Ten creameries reported part or all of the containers being furnished by the buyer to whom butter was sold. This materially reduced the cost of packing supplies reported in those plants but does not indicate a net saving since the price received for butter may be correspondingly lower. The per unit package cost of those shipping in fiber boxes averaged considerably less than those packaging butter in tubs. All baskets used were furnished by buyers.

The plants with a large volume of local sales tended to have a higher per unit packing expense. Some of the creameries were apparently able to effect better purchasing arrangements than others, thereby keeping their supply expenses at a low level. Some creameries obtained supplies at lower prices because they purchased in quantities meriting discounts. Many of the creameries pooled their purchases through West Central Cooperatives, Inc., and achieved the same advantages. Some creameries purchased a large proportion of their supplies through the cooperative supply department of the Land O' Lakes organization.

Fuel, power, light, water, and refrigeration--In the use of fuel, power, and refrigeration the larger volume plants have an advantage over the smaller plants in that they generally have an opportunity to utilize their fuel and power more effectively.

One creamery used wood for fuel, one used both wood and coal, one used oil, and 26 used coal. Prices paid for coal varied between creameries from $7 to $11.50 per ton. Some of these creameries should carefully investigate their purchasing arrangements on coal. The average fuel cost was 0.178 cents per pound of butter manufactured by the 29 creameries.

Building and equipment expense--Building and equipment expense, including taxes, insurance, repairs, and depreciation, represents 19.9 per cent of operating costs in this area. (Table V) These items vary greatly because of differences in volume, cost rates, location, size of facilities, and utilization. Such costs are relatively fixed, hence the cost per unit decreases rather significantly as volume increases.

The annual taxes (exclusive of social security taxes) ranged from $46 to $1,082. The average tax per plant was $434. The per unit outlay for taxes varied from 0.021 to 0.352 cents. Per unit personal property and real estate taxes in the area are considerably above the average for the state.

The annual cost of insurance averaged $166 per plant. In per unit terms, insurance expense amounted to 0.054 cents and ranged from 0.023 cents to 0.145 cents.

All but one of the 29 cooperative creameries in the study were making a provision for the depreciation of their facilities. In several instances the depreciation being charged is not adequate to cover actual wear and tear on facilities. Creameries are often tempted to neglect this intangible expense when pressed by serious competition. Failure to provide for depreciation leads to an understatement of costs and an overstatement of the amount earned on each pound of butterfat handled. Creameries neglecting their depreciation charge should recognize that such policy amounts to paying out a part of the capital to the patrons in higher butterfat prices.

Since such a policy gives the producer higher butterfat prices than those justified by efficiency of operation, it may serve as an unfair competitive device. In order to keep the costs of all plants on a comparable basis in this analysis, an average rate of depreciation was taken on the fixed assets of the creamery which had not provided for this item in its operating statement.

When the survey was made, the operator at each creamery was asked to estimate the maximum capacity of his plant with the existing building and equipment. The total capacity of the 29 plants was indicated to be slightly over 17 million pounds as compared to the slightly less than nine million manufactured in a year of high production such as 1939. The ratio of plant capacity to plant use is slightly over 1.9 which indicates a burdensome unused plant capacity.

The ratio of pounds of butter made to investment in fixed assets is another measure of plant utilization. The average ratio for 173 creameries in all parts of the state is approximately 18 pounds of butter manufactured per dollar invested in fixed assets.(1) The ratios of various plants in this area ranged from 7.4 to 55.7 with an average of 16.9 pounds. Fifteen of the creameries were below the state average of 18 pounds and 14 were above. A low ratio indicates overinvestment in plant facilities relative to the volume of butter manufactured. It is generally accompanied by high per unit building and equipment cost.

General and Administrative Expense

General and administrative expense consisting of director's fees, office salaries, office supplies, telephone, auditing, advertising and donations amounted to 0.368 centsper pound, or 13.7 per cent of all operating costs. (Table V) General and administrative expenses varied from 0.147 centsper pound to 0.839 cents. The average outlay for this purpose was $1,136 per creamery.

Office salaries, amounting to $347 per creamery, represent the largest item in this group of expenses. This is materially below $430, the average for the state. The outlay varied from $12 to $986. These salaries consisted mainly of payments to the operator, the bookkeeper, or other association officials for their services in keeping the accounts and records of the association. The outlay for bookkeeping varied with the number of patrons served, the volume of local sales, the amount of sideline sales, and the detail with which the fundamental accounting records were kept. The association secretary kept the books in four creameries, the operator in nine, the operator and a bookkeeper in five, and entirely by a bookkeeper in 11.

Generally speaking, creameries in this area are keeping adequate records and have regular audits. There are individual cases, however, where definite improvement in the accounting system is necessary if the records are to serve as an effective tool in increasing the efficiency of operation and the net return to farmers. All 29 creameries were using a double entry system but in several instances the records were not adequate to present a complete picture of operations. A complete monthly operating statement is a minimum accounting necessity in any business. Only eight plants reported preparing monthly operating statements.

Only one creamery in the group does not have its books audited regularly. Fourteen plants have audits annually, 11 semi-annually, and three quarterly. This service cost annually on the average of $70 per plant and ranged from $32 to $319. The outlay for a reliable audit is generally considered as an investment paying

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(1) Koller and Jesness, "Minnesota Cooperative Creameries", Agricultural Experiment Station Bulletin No. 333 - Division of Agricultural Economics, University of Minnesota.

large dividends by every successful organization in any line of business. An audit is not merely a check on the honesty of creamery officials; its most important value is the aid which it provides to those responsible for the management of the business. Some auditing concerns offer an excellent analytical service with their audits which creamery officials in various parts of the state indicate has saved their associations hundreds of dollars. The cost of audits varies with the condition of the records at the time the audit is made, completeness of the audit, the firm doing the work, time elapsed since the last previous audit, and the size of the business.

Table V. Operating Costs of West Central Minnesota Creameries, Compared with 173 Creameries Selected from All Parts of the State.

Items	Your Creamery	West Central Minn. Creameries: Average of 29 Plants	West Central Minn. Creameries: Highest Cost Plant	West Central Minn. Creameries: Lowest Cost Plant	Average of 173 Creameries
Volume (lbs. butter mfgd.)	_____	308.741	273,823	393,677	394,066
Operating cost items:					
Manufacturing expense:		(cents per pound of butter made)			
Packing supplies	_____	0.3028	0.2556	0.0641	0.355
General supplies	_____	.1829	.7362	.1450	.173
Salt	_____	.1784	.2372	.2304	.032
Fuel	_____	.0271	.0232	.0329	.171
Power, light, water, refrigerator	_____	.1784	.2167	.0167	.138
Social security taxes	_____	.0359	.0675	.0163	.045
Taxes	_____	.1406	.3263	.0359	.095
Insurance	_____	.0537	.0732	.0383	.042
Repairs	_____	.0884	.2588	.0618	.086
Depreciation, building	_____	.0891	.1682	.0319	.080
Depreciation, equipment	_____	.1854	.1999	.1484	.148
Miscellaneous	_____	.0029	.0305	---	.012
Manufacturing expense total	_____	1.4656	2.5933	0.8177	1.377
Labor and mgt. expense	_____	.9083	1.5050	.7965	.875
General and adm. expense	_____	.3679	.8028	.2617	.274
Interest on loans	_____	.0622	.1888	---	.025
Total operating cost	_____	2.8040	5.0899	1.8699	2.551

Interest on Loans

Per unit interest costs varied widely, ranging from zero in plants having no debt to 0.188 cents. The average for 29 plants was .062 cents per pound of butter made or 2.2 per cent of total operating costs. This is materially higher than the average of .025 cents for 173 creameries in all parts of the state, indicating a heavier than average debt burden in this area.

Total Costs

The total operating costs in this group of plants is 2.804 cents a pound (see Table V). The range is from a low of 1.8699 to a high of 5.0899 cents. The total cost in this group of creameries in West Central Minnesota exceeds the average cost of 2.551 cents for 173 creameries selected from all parts of the state by one-fourth cent per pound. One important factor causing the higher costs of operation in this area is the lower average volume of output. The 29 creameries studied in this area manufactured an average of 308,707 pounds of butter as compared with 394,066 pounds for the 173 plants.

MARKETING OPERATIONS

The efficiency with which creameries market their butter is reflected in the net price received. Some of the more important factors giving rise to variations in the average annual price received for butter are: Differences in (1) the volume of output; (2) markets in which butter is sold; (3) transportation costs; (4) sales outlets used; (5) methods of packaging; (6) kind of butter; (7) quality of butter; and (8) seasonal variations in production.

Effect of Volume of Output on Price

For the state as a whole larger volume plants tend to receive higher prices for butter sold. Out of the 11 plants in this area which sold, all shipped butter to the same wholesale buyer; the five largest volume plants averaged 0.23 cents more per pound of butter shipped than the five smallest volume plants. Factors which may contribute to this variation are differences in cost of transportation, quality of butter, costs of handling by buyer, etc.

Effect of Quality on Price

Five plants reported over 90 per cent of their cream bought as Sweet and received 23.86 cents per pound of butter shipped. The five plants reporting less than 60 per cent of their cream bought as Sweet received an average of 23.12 cents for butter shipped. This is a difference of 0.74 cents or nearly three-fourths cent per pound of shipped sales. This would indicate there is still plenty of room for improving the quality of cream and butter produced in parts of this area.

Effect of Seasonality of Production on Price

The proportion of total butter manufactured which is produced in spring and summer months as compared with the proportion produced in the fall and winter months will materially influence the average price received for butter shipped during the year (see Table VI).

The importance of this item is illustrated by the fact that if two of these creameries showing different seasonal fluctuations in production had received the same monthly prices for butter, the one with least seasonal variation would have averaged 0.251 cents per pound more for butter shipped during 1939 than the other. This would amount to $775 for a plant of average volume in this area.

There is considerable variation in seasonality of output between creameries in this area. The greater the proportion of total output that is sold during the months of higher prices the higher will be the average annual price received. This does not necessarily mean that farmers should change their production program. Farmers should seriously consider the seasonal relationships between costs of production and prices. If it is possible to produce a greater proportion of their butterfat during the months of higher prices without materially increasing costs of production, a greater net return could be realized. At the same time the problem of efficiently utilizing labor and equipment in the creamery would be simplified.

Table VI. Monthly Percentage of Total Butter Manufactured by 29 Creameries and Monthly Prices.

Month	Your Monthly Production 1939	Average Monthly Production for 29 Creameries - 1939	Average Price of New York Extra Butter - 1935-39
	% of Total	% of Total	Cents per Lb.
January	_____	8.84	32.6
February	_____	8.56	32.8
March	_____	10.04	30.6
April	_____	9.08	29.8
May	_____	11.28	27.2
June	_____	11.02	27.0
July	_____	9.50	28.0
August	_____	7.24	29.8
September	_____	5.63	30.0
October	_____	5.32	30.4
November	_____	6.00	32.2
December	_____	7.49	33.0
		100.00	30.2

Effect of Market Outlets on Price

Some variations in price received for butter may be explained by differences in the markets in which it is sold. These creameries sold 7.5 per cent of the butter to their patrons, 9.6 per cent to other local customers, and 82.9 per cent to wholesale dealers.

Butter sold locally--Creameries generally have a considerable price advantage in selling butter locally. By selling locally, freight and other selling charges involved in shipping butter may be avoided. There are generally some additional expenses which must be taken into consideration on local sales (printing and packaging costs). The average price received by each creamery for butter sold locally each month during 1939 and 1940 is shown in Appendix A.

The proportion of butter sold to local customers other than patrons varied from 28 to two per cent. Eleven plants disposed of more than 10 per cent of their butter output through local sales other than patrons. Creameries in this area averaged over one-half cent more per pound on local non-patron sales than on shipped sales (see Table VII).

There was an average advantage of 1.85 cents per pound in selling butter to patrons as compared with shipping (Table VII). It will also be observed that the creameries in this area received a higher average return for patron butter sales than for other local sales.

Shipped sales--Since nearly 83 per cent of the butter in this group of creameries are shipped, it is variation in this portion of the sales which largely determines the net price received on all butter. Average net receipts from butter shipped by these creameries during 1939 ranged from 22.01 cents to 24.24 cents with an average of 23.69 cents per pound for the 27 plants (Table VII). This variation of 2.23 cents per pound on receipts from shipped sales is a very important item influencing the average price creameries can pay for butterfat. Several factors may affect returns from butter shipped among which are: (1) outlet used for shipped sales; (2) quality of butter sold; (3) proportion of butter sold at different seasons of the year; (4) transportation and other charges, and (5) whether or not packages are furnished by the buyer.

Eleven creameries shipped to National Butter Company, five to Armour and Company, four to New York Commission firms including three to Hunter-Walton and one to Paul R. Dillon, three to Land O' Lakes, three to Swift and Company, one to Pipestone Produce, one to both National Butter Company and Swift and Company, and one to both National Butter Company and Armour and Company.

The average monthly prices received for butter shipped by the various creameries during 1939 and 1940 are shown in Appendix B. Appendix C shows the monthly variation in the average price received for the sale of all butter by the various plants.

By-Product Sales

The income derived from the sale of butter was supplemented in varying amounts by the sale of buttermilk. The average income per year from this source was $641 per creamery and ranged from $2,310 in one plant to none in another. Seventeen creameries sold buttermilk to commercial concerns largely for drying while 12 sold the buttermilk to local farmers. The price received varied widely between plants and during the year. Most plants have too small a quantity of buttermilk to warrant the installation of expensive drying equipment.

Sideline Enterprises

All creameries in the group studied handled some sidelines. The number of sidelines carried as well as the volume of goods handled varied widely from plant to plant. Milk and cream sales averaged $2,021 per plant. Two creameries reported no milk and cream sales while three others reported over $9,000. The possibilities of developing a milk and cream market are limited by the size of population center in which the creamery is located. This sideline appears to be quite profitable in those plants where it has been well developed. Six of the creameries with cold storage lockers reported net earnings ranging from $21 to over $1,200. One creamery said it aimed to pay its debts from earnings on sidelines. (See Table VIII, page 23.)

Table VII. Sales of 27 West Central Minnesota Creameries, 1939.

Item	Your Creamery	West Central Minn. Creameries Average of 27 Plants	High Plant	Low Plant
Butter sales:				
Volume of butter sales (lbs.)	_____	313,753	600,279	116,546
Shipped sales	_____	263,947	478,236	104,189
Local non-patron sales	_____	28,102	99,546	2,346
Local patron sales	_____	21,704	48,130	8,924
Price received (cts. per lb.)				
Shipped sales	_____	23.69	24.24	22.01
Local non-patron sales	_____	24.23	27.58	25.00
Local patron sales	_____	25.54	27.55	22.44
All butter sales	_____	23.87	24.94	23.05
Other product sales:				
Milk and cream sales (in dollars)	_____	2,020.95	10,673.36	none
Buttermilk sales (liquid and dried) (in dollars)	_____	641.21	2,310.20	none

Total earnings from sidelines and other income which were available for distribution to patrons or to increase net worth of the creameries averaged $971 per plant and ranged from over $4,600 to less than $60. When a creamery has sizeable earnings on sidelines and uses such earnings to pay higher prices for butterfat, it is placed in a relatively strong competitive position. Such a policy can be seriously questioned from the cooperative angle and may cause the organization to lose its exemption from federal income taxes.

Some creameries are now handling sidelines for which no separate accounts are kept. Unless accounts are kept on each sideline and costs of handling are properly allocated to it, there is no way of determining the actual contribution the sidelines made to the creamery business.

Creameries which have space and equipment which are not being utilized in its regular creamery operations should seriously consider the possibilities of bringing such facilities into productive use and thereby reduce overhead costs. A sideline may be the answer. On the other hand, it is entirely possible to spread the management of a plant over so many enterprises that general efficiency declines and costs mount. Sidelines requiring additional buildings and equipment should be carefully analyzed before the investment is made. The primary job of a creamery is to market butterfat as effectively as possible. Where sidelines facilitate this objective they might well be added, otherwise the addition is questionable.

Table VIII. Volume of Sales of Sidelines - 29 West Central Minnesota Creameries, 1939.

Sideline	No. of Creameries Handling Sideline	Average Volume of Sales
Cheese	28	$ 741.38
Eggs	12	9,482.07
Poultry	18	11,337.13
Feed, flour, salt, seeds	24	3,845.36
Milk and cream	27	2,020.95
Cold storage lockers	8	5,017.41*
Other	29	868.42
Total Sidelines	29	14,569.85

*Includes locker rentals, processing charges, and sales of meat.

RETURNS AVAILABLE ON BUTTERFAT HANDLED

Variations in the efficiency with which these creameries have conducted their manufacturing and marketing operations are reflected in the net returns available on each pound of butterfat handled. "Net returns available" represents the price the creamery could have paid for butterfat (average for 1939) without altering its financial position. The average net return for this group of creameries in 1939 was 27.21 cents per pound of butterfat handled (see Table IX).

Table IX. Returns Available on Butterfat Handled - 27 West Central Minnesota Creameries, 1939.

Cents per Pound	Number of Creameries
23.00 - 23.99	1
24.00 - 24.99	1
25.00 - 25.99	4
26.00 - 26.99	7
27.00 - 27.99	11
28.00 - 28.99	3

Returns available ranged from 23.82 cents to 28.20 cents - a difference of 4.38 cents from the low to the high plant. Individual creameries ranged from 3.37 cents below to 1.01 cents above the average for the group of 27 plants. This shows wide variations in the competitive strength of different creameries and indicates that individual plants should very critically analyze their own situation, giving particular attention to all factors influencing net returns available on butterfat handled.

CONCLUSIONS AND SUGGESTIONS

Cooperative creamery problems appear to be more numerous in this area than in some other areas of the state. The major reason no doubt is that the dairy industry is relatively less important. Also there was found to be considerable difference in the importance of the dairy industry and in the cooperative creamery problems within the area.

Manufacturing Operations

The wide variation in operating efficiency of these plants suggests that much can be gained through improved plant operations. The principal obstacle to lower per unit costs is that the volume of output of many plants is insufficient for the most effective use of the buttermaking facilities. The only permanent solution of this problem is the consolidation of the smaller plants. With fewer plants serving parts of this area, plant costs would be considerably reduced. Certainly no plants should be replaced or large expenditures made for equipment without first giving careful consideration to the advisability of consolidating some of the existing units. With more efficient plant operations the remaining cooperative creameries in the area would find less competition from other types of buyers.

A large share of the success of a creamery depends upon the efficiency of the operator-manager. Rapidly changing technological developments in the industry and increasingly complex business problems demand that cooperative boards employ only men of superior ability and training to manage their plants. Operators and other employees should periodically be required to supplement their training in order that the organization may benefit from the adoption of latest developments in the industry.

Reliable accounting and statistical information is indispensable in efficient plant management. A number of the plants in this area could make improvements in accounting procedure and statistical data for recording and analyzing plant operations.

Marketing Operations

The fact that some of the creameries are netting less than the average plant in the area on their butter, and especially on the portion which is shipped, suggests the urgent need for improvement in this direction. Each step in the marketing process should receive careful analysis with the aim of correcting defects. Quality of product in this area is below that of most other areas in the state and can be further improved. Sales outlets should be carefully analyzed in an effort to determine the best outlet for the butter produced. There is considerable seasonality in butter manufactured which reflects seasonality of production in the area. By leveling out production a larger proportion of the butter could be sold at a higher price. Also, operations within the creamery could be more efficiently organized.

Marketing gains might also be obtained from the reduction of the number of plants serving the area. Various analyses of butter marketing show that the larger plants enjoy an advantage in selling their products.

Membership Relations

This study shows that some of the creameries in this area confront difficult membership problems. With the improvement in highways and transportation facilities, butterfat producers have had opened to them several alternative outlets for their products. Attractive prices and a wide variety of service inducements have frequently been offered to wean patrons from their cooperatives. Through failure to operate efficiently, lack of informing members and patrons, and sometimes indifference, many cooperative creameries have lost patron members to other plants (cooperative and private) from their area.

Patrons who become stockholders in their cooperative tend to take a greater interest in the welfare of the organization. Cooperative associations should make and follow definite plans to keep the ownership of stock or membership as nearly as possible in the hands of patrons. Membership should be made reasonably easy to acquire.

The understanding and support of members and creamery officials are necessary if cooperative creameries are going to operate successfully and keep up with ever-changing conditions. It is of increasing importance that officers and members alike are kept informed concerning the economic problems facing the industry and the specific business operations of their association. A sound educational program including more effective annual meetings, informational literature, periodic accounting reports, and statistical comparisons are a vital necessity to successful cooperative marketing.

In the long run cooperative creameries that have alert management, that adapt their business to new developments, and that put forth constant effort for greater plant efficiency, serve the farmers' best interests. Such organizations deserve and will continue to enjoy the farmers' patronage and support.

WEST CENTRAL COOPERATIVES, INC.

West Central Cooperatives, Inc. is a cooperative trucking association serving 29 cooperative creameries in 10 West Central Minnesota counties. The association is financed and controlled by member creameries. Trucking operations by the cooperative association started in the summer of 1935. Two years earlier a private trucker was hired to haul eggs and poultry from creameries in this area to market points. It appears that the margin on eggs and poultry between the local and central market prices was decreased by this action. Butter was soon added to the list and handled in the same way. Present headquarters for the Association are at Benson, Minnesota.

A manager is hired who is responsible to a board of five directors. Directors are elected at an annual meeting to which each member creamery sends one voting delegate. Since directors are elected from the voting delegates, five creameries are always represented on the board. An advisory director representing the creamery operators and elected by them meets with the board. Directors are elected for one year and officers are elected from and by the directors.

The association is in a strong financial position, showing a current ratio (ratio of current assets to current liabilities) of 2.77 to 1 as of December 31, 1939, and a total net worth of over $13,000. Not more than $200 of stock is held by any one member of the association. Net earnings which in 1939 amounted to $6,000 are rebated, under present practices, at the rate of 25 per cent on commercial hauling and 10 per cent on butter. Rebates are made every three months.

Earnings above these rebates are partly used to build up the organization's capital structure. Any additional earnings are credited to member associations in the form of certificates of equity. Over $35,000 have been refunded to members since 1935.

Seven trucks were owned and operated by the association in 1940 and during the summer months of that year over one million pounds per month were being transported for member creameries. Creamery supplies, feed, salt, seeds, oyster shells, and flour are jobbed for member creameries.

West Central Cooperatives, Inc. is at present rendering economical and worthwhile service to its members. So long as it is well managed, it will deserve and receive the needed support of member creameries. Since a number of creameries within the area now served by the association are not using its facilities, a conservative program of expansion should result in more efficient operation. The organization might also consider increasing the number of services rendered its members, if the opportunity appears.

APPENDIX A - Prices Received for Local Butter, West Central Minnesota - 1939-1940.

1939	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	No.10	No.11	No.12	No.14	No.15
January	26.71	27.11	27.02	26.49	26.04	26.28	27.74	25.99	25.92	24.00	25.93	26.96	26.68	26.26
February	26.47	25.71	24.27	25.61	26.02	25.79	26.99	25.00	25.72	25.50	25.62	25.63	25.81	25.72
March	25.16	22.46	22.40	23.28	24.03	22.97	25.15	23.26	23.76	24.00	23.34	25.25	21.55	24.16
April	22.88	22.26	22.80	22.59	22.11	21.69	23.91	23.02	22.90	22.00	22.50	22.99	23.28	22.64
May	23.52	22.76	22.90	22.85	23.08	24.69	24.73	23.92	23.50	21.90	22.24	22.79	24.14	23.57
June	24.00	23.19	23.28	23.05	23.12	23.29	24.02	24.04	24.00	23.10	24.63	23.59	24.41	24.47
July	24.01	23.04	23.29	23.47	23.07	22.62	24.74	23.90	23.90	23.60	23.69	24.49	24.32	24.11
August	24.26	24.65	23.35	24.04	23.99	22.66	25.61	24.04	23.93	24.60	22.93	24.77	24.84	24.58
September	27.40	28.29	27.71	27.96	27.83	26.87	29.40	28.62	26.98	26.40	25.33	28.41	28.29	27.30
October	29.42	28.75	29.31	29.38	29.85	28.45	30.50	29.84	29.40	28.80	28.48	30.08	30.51	29.29
November	30.26	30.39	30.84	30.92	31.66	31.01	31.32	30.84	30.10	29.70	30.20	31.09	30.76	29.43
December	30.65	30.91	31.72	30.93	32.50	30.79	32.13	31.21	30.85	29.90	30.74	30.66	31.34	29.84
1940														
January	32.10	33.16	31.70	32.19	31.91	32.42	34.14	31.85	31.50	31.10	31.82	33.32	32.69	31.25
February	30.39	30.00	31.04	29.71	29.57	29.51	31.77	30.10	29.75	29.30	30.13	30.76	31.10	30.20
March	29.19	28.88	30.00	29.16	--	28.46	31.01	28.21	29.01	29.10	28.60	29.87	30.12	29.03
April	28.51	28.72	28.36	28.41	--	27.90	30.53	28.06	--	29.31	27.60	28.50	29.34	28.37
May	27.72	27.67	28.21	27.09	--	27.16	29.71	27.95	28.34	28.00	27.62	28.12	--	27.95
June	27.09	26.83	25.64	27.03	26.40	26.81	28.73	27.05	28.12	27.60	26.70	27.87	27.95	27.07

1939	No.16	No.17	No.18	No.19	No.20	No.21	No.22	No.24	No.25	No.26	No.27	No.28	No.29
January	27.00	25.80	26.70	26.21	25.96	26.12	26.26	26.10	25.00	--	25.78	25.35	26.30
February	25.60	25.50	26.10	26.05	25.86	26.01	26.07	26.00	25.00	--	25.63	25.42	26.00
March	22.90	23.10	22.60	24.42	24.14	23.48	24.83	23.50	23.37	--	24.87	22.58	23.90
April	21.50	22.00	22.50	22.35	22.54	22.19	22.86	21.80	21.91	--	23.55	20.81	22.90
May	22.50	23.00	23.40	22.76	23.92	22.59	23.88	21.40	22.70	--	23.54	22.48	23.00
June	22.60	23.60	23.10	23.71	23.72	23.68	24.01	22.40	23.00	--	23.72	22.68	24.00
July	22.90	22.90	23.30	23.29	22.93	23.04	24.03	22.60	22.00	--	23.68	22.58	23.00
August	22.60	23.30	24.20	24.18	23.00	23.56	24.04	22.00	22.00	23.50	23.60	22.21	23.60
September	27.20	26.10	26.80	26.03	26.54	27.22	27.47	25.40	25.10	26.76	26.81	26.00	27.00
October	28.70	27.50	28.60	28.65	28.96	29.16	29.11	28.60	27.50	28.60	28.67	27.47	28.60
November	30.40	28.20	30.00	29.40	30.02	29.71	30.11	29.30	29.50	29.70	29.77	28.37	29.90
December	31.00	29.00	29.70	30.03	29.70	29.95	30.71	29.90	29.00	30.40	29.97	29.22	30.00
1940													
January	32.90	30.30	32.20	31.07	31.47	31.37	31.89	31.30	30.70	31.83	31.54	31.23	32.00
February	30.00	28.80	29.52	30.48	29.65	30.54	31.04	29.90	29.15	30.21	29.30	29.58	30.60
March	29.30	28.00	28.90	28.21	28.88	29.05	30.00	29.20	27.78	29.02	28.64	--	29.00
April	28.30	27.30	28.90	28.36	28.22	28.39	29.28	28.40	27.12	28.34	28.03	--	28.40
May	27.70	27.10	27.70	28.15	--	27.72	28.79	27.51	26.40	27.25	27.81	27.55	27.50
June	--	25.90	27.06	26.79	--	27.11	28.00	27.13	25.01	26.79	27.63	27.35	27.50

APPENDIX B - Prices Received for Butter Shipped, West Central Minnesota - 1939-1940

1939	No.1 (e)	No.2	No.3 (a)	No.4	No.5 (b)	No.6	No.7	No.8	No.9 (e)	No.10	No.11 (c)	No.12	No.14	No.15	No.16 (a)	No.17 (c)
January	24.62	24.07	24.47	24.67	25.01	24.35	24.63	24.68	23.98	23.10	22.96	25.57	26.32	24.57	24.60	24.20
February	24.65	23.09	24.37	24.69	24.63	24.40	24.09	24.35	24.57	23.30	22.97	23.95	24.59	24.25	24.50	24.20
March	21.56	20.88	21.26	21.56	21.78	21.32	21.94	21.48	21.94	21.00	20.50	23.25	21.94	21.46	22.20	21.70
April	21.86	20.04	21.32	21.56	21.68	21.18	21.49	21.70	21.90	20.00	20.12	21.26	21.77	21.88	21.46	21.00
May	22.52	20.25	22.23	22.26	22.55	21.60	22.09	22.32	23.01	21.60	20.00	22.00	22.46	22.51	22.30	21.50
June	22.42	21.22	22.27	22.17	22.64	21.16	21.62	22.14	22.54	21.50	20.46	22.81	22.23	22.30	22.60	21.50
July	22.76	21.99	22.32	22.36	22.53	21.17	21.65	22.07	22.58	21.50	20.70	21.97	22.20	21.99	22.60	21.23
August	23.55	22.09	22.71	22.91	23.24	22.19	23.05	22.64	23.30	22.70	21.48	23.09	23.93	22.79	22.70	21.70
September	27.35	27.14	26.59	27.02	27.32	25.52	26.64	26.32	27.00	25.40	25.93	26.94	27.08	26.74	26.50	25.20
October	28.36	27.24	27.47	27.70	27.91	26.22	27.48	27.11	29.50	27.30	26.65	27.65	27.85	27.30	27.60	26.00
November	28.92	28.40	28.70	28.93	29.05	28.33	28.72	28.65	29.39	27.80	28.24	29.01	29.08	28.74	28.60	27.90
December	29.34	29.13	28.89	28.99	29.27	28.73	28.86	29.25	29.30	28.90	28.09	29.40	28.82	29.24	28.80	27.83
1940																
January	30.09	30.39	30.33	30.28	30.84	29.79	30.05	30.59	30.37	30.00	30.10	30.00	30.61	30.55	30.90	29.80
February	27.52	27.93	27.49	27.56	27.80	27.12	27.43	27.46	27.30	27.70	27.08	27.47	27.84	27.52	27.30	27.00
March	26.89	27.43	27.11	27.19	--	26.84	27.17	27.33	26.89	26.80	26.75	27.13	27.48	27.26	27.20	26.35
April	26.60	26.71	26.47	26.31	--	26.10	26.30	26.57	--	26.77	25.78	26.35	26.59	26.91	26.40	25.75
May	25.56	26.01	25.80	25.78	--	24.99	25.61	25.71	25.48	25.20	25.63	25.50	--	25.78	25.80	25.24
June	25.75	25.95	25.41	25.81	25.70	24.77	25.47	25.54	25.78	25.00	24.62	25.84	25.78	25.44	--	24.51

1939	No.18 (a)	No.19 (d)	No.20	No.21	No.22	No.24 (e)	No.25 (b)	No.26 (d)	No.27	No.28 (e)	No.29 (c)
January	24.50	23.51	24.40	24.05	24.67	24.20	23.77	--	24.92	22.83	24.00
February	24.30	23.28	24.21	24.25	24.26	24.00	23.80	--	24.15	23.03	24.00
March	22.10	20.60	21.11	21.31	21.46	21.20	21.46	--	21.82	20.30	21.90
April	21.00	20.89	21.43	21.30	21.69	21.30	20.75	--	21.74	20.46	20.60
May	21.50	21.61	21.78	21.87	22.27	22.60	21.46	--	22.26	21.20	21.40
June	22.10	21.25	21.45	21.59	22.01	22.10	21.70	--	21.74	21.80	21.90
July	21.70	21.48	21.50	21.63	22.02	22.20	21.48	--	21.88	22.70	21.40
August	22.30	22.13	22.58	22.43	22.90	22.90	22.01	21.50	22.80	22.13	22.25
September	25.00	26.55	25.90	26.03	26.51	26.80	25.90	26.00	26.33	26.16	26.20
October	27.03	27.10	26.95	26.83	27.39	27.30	26.70	26.50	27.18	27.25	27.10
November	28.30	28.36	28.50	28.09	28.74	28.30	27.12	27.90	28.73	28.51	28.20
December	28.20	28.56	28.74	28.75	29.33	28.70	28.32	28.10	29.25	28.53	28.10
1940											
January	30.00	29.53	29.93	30.18	30.53	29.50	29.87	29.02	30.24	30.00	29.90
February	28.06	26.56	27.07	27.26	27.49	26.80	26.95	26.21	27.58	27.10	27.10
March	26.70	26.34	28.23	26.87	27.28	26.50	26.33	25.96	27.00	--	26.60
April	26.05	25.55	25.94	26.15	26.53	25.80	25.49	25.33	26.57	--	25.70
May	25.60	25.26	--	25.37	25.72	25.06	24.95	24.90	25.67	25.10	25.30
June	24.90	24.41	--	24.84	25.34	25.24	24.65	24.74	25.10	25.67	25.00

Note--A variation in the price policy of different butter buyers makes allowances for certain items necessary in order to make prices comparable. Some buyers make a deduction for freight costs while others do not, some furnish containers and others not, some make special deductions in the way of cartage, handling charges and dues.

(a) Add 1.64¢.

(b) Add 1.41¢.

(c) Add 1.63¢.

(d) Subtract .34¢.

(e) Subtract .12¢.

APPENDIX C - Prices Received for All Butter, West Central Minnesota - 1939-1940.

1939	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	No.10	No.11	No.12	No.14	No.15
January	25.02	24.21	24.31	24.80	25.08	24.52	24.79	24.78	24.21	23.15	23.49	25.67	26.21	24.72
February	24.83	24.03	24.30	24.21	24.67	24.45	24.23	24.37	24.72	22.40	23.57	24.25	24.56	24.42
March	22.14	20.99	21.31	21.84	22.60	21.45	22.09	21.54	22.17	20.47	21.02	20.39	21.70	21.66
April	22.04	20.15	21.41	21.66	21.69	21.19	21.61	21.83	21.94	20.66	20.77	21.39	22.01	21.95
May	22.71	21.52	22.26	22.35	22.62	21.88	22.22	22.48	23.31	20.64	20.38	22.06	22.59	22.67
June	22.71	21.34	22.30	22.21	22.66	21.29	21.74	22.26	22.79	21.70	21.46	22.00	22.44	22.54
July	23.09	22.07	22.38	22.52	22.59	21.32	21.87	22.27	22.90	21.82	21.06	22.22	22.43	22.34
August	23.88	23.01	22.76	23.57	23.32	22.27	23.34	22.90	23.34	23.37	22.17	23.39	24.12	23.07
September	27.62	27.33	26.79	27.30	27.37	26.24	27.00	27.03	27.17	25.78	26.90	27.22	27.47	27.03
October	28.80	27.49	27.69	28.13	28.17	26.57	27.87	27.61	28.59	27.93	28.21	26.00	28.68	27.74
November	29.45	28.59	28.89	29.36	29.31	28.78	28.98	29.16	29.52	28.11	29.02	29.88	29.52	29.01
December	29.75	29.28	29.10	29.47	29.55	28.95	29.12	29.56	29.74	29.52	28.88	29.57	29.17	29.34
1940														
January	30.54	30.57	30.39	30.32	30.92	30.00	30.30	30.71	30.58	30.12	30.47	30.30	30.40	30.75
February	28.05	28.00	27.61	27.54	27.92	27.23	27.65	27.62	27.45	27.85	27.70	27.81	27.87	27.64
March	27.27	27.48	27.23	27.39	--	26.96	27.37	27.38	27.15	26.98	27.16	27.36	27.65	27.42
April	26.99	26.84	26.50	26.56	--	26.25	26.53	26.69	--	27.08	26.11	26.59	26.80	27.08
May	25.97	26.08	25.90	25.78	--	25.26	25.84	25.90	25.95	25.56	25.75	25.84	--	25.96
June	25.99	25.98	25.41	25.92	25.76	24.92	25.66	25.67	26.09	25.52	25.13	26.09	25.99	25.67

1939	No.16	No.17	No.18	No.19	No.20	No.21	No.22	No.24	No.25	No.26	No.27	No.28	No.29
January	24.70	24.22	24.71	23.77	24.64	24.41	24.83	24.45	23.98	--	24.97	23.30	24.66
February	24.53	24.33	24.51	23.60	24.50	24.56	24.47	24.35	24.40	--	24.28	23.35	24.27
March	22.23	21.79	22.11	20.97	21.37	21.56	21.76	21.41	21.68	--	22.08	20.61	22.63
April	21.44	21.03	21.11	21.03	21.51	21.42	21.83	21.41	20.85	--	21.96	20.49	21.50
May	22.39	21.67	21.77	21.81	22.01	22.05	22.47	22.56	21.62	--	22.41	21.56	22.04
June	22.40	21.75	22.21	21.54	21.87	21.89	22.26	22.23	21.92	--	21.93	21.91	22.52
July	22.37	21.49	21.95	21.77	21.69	21.87	22.30	22.30	21.65	--	22.11	22.68	22.19
August	22.75	22.13	22.71	22.56	22.72	22.69	23.15	22.81	22.47	22.22	22.98	22.19	23.39
September	26.65	25.62	25.55	26.74	26.19	26.70	27.10	26.76	25.86	26.67	26.61	26.17	26.82
October	27.70	26.36	27.71	27.46	27.58	27.56	27.74	27.56	27.10	27.41	27.51	27.45	28.65
November	29.13	28.02	28.65	28.64	28.94	28.69	29.13	28.65	28.36	28.53	28.91	28.54	29.42
December	29.00	28.01	28.50	28.85	29.00	29.03	29.55	28.89	28.60	28.84	29.29	28.73	29.29
1940													
January	30.92	29.88	30.35	29.90	30.19	30.47	30.72	29.98	30.30	29.43	30.35	30.66	30.77
February	27.48	27.09	28.18	26.83	27.39	27.77	27.88	26.96	27.20	26.87	27.68	27.54	28.10
March	27.32	26.53	26.92	26.58	27.15	27.23	27.55	26.92	26.54	26.57	27.14	--	27.45
April	26.49	25.92	26.44	25.82	26.28	26.54	26.86	26.14	25.73	25.90	26.71	--	26.64
May	25.93	25.43	25.79	25.58	--	25.81	26.05	25.39	25.14	25.41	25.90	25.57	26.09
June	--	24.17	25.13	25.36	--	25.25	25.67	24.43	24.71	25.19	25.35	25.88	26.60

APPENDIX D - Prices Paid for Sweet Cream Butterfat, West Central Minnesota - 1939-1940.

1939	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	No.10	No.11	No.12	No.14	No.15
January	28.83	27.99	27.79	28.00	27.98	27.72	28.97	27.95	27.48	25.30	26.12	27.95	26.46	26.83
February	27.88	27.50	27.53	26.52	27.98	26.84	27.98	27.00	26.79	25.10	25.97	26.53	25.63	26.12
March	24.87	23.89	24.01	23.92	24.99	24.02	25.98	24.03	24.87	23.20	23.03	26.11	23.74	23.98
April	23.86	24.00	23.79	24.00	23.98	22.85	24.99	23.99	23.88	22.70	21.50	23.39	23.08	22.31
May	24.90	24.55	24.95	24.47	24.98	24.73	25.98	24.98	24.88	23.30	22.10	23.99	24.36	23.88
June	24.95	25.00	25.46	24.47	26.01	24.87	24.99	24.99	25.81	24.30	23.14	24.46	24.16	24.97
July	25.72	25.10	25.46	25.00	24.99	23.38	25.99	24.97	25.76	24.50	23.04	24.50	24.04	24.29
August	25.91	26.46	25.47	25.96	25.98	23.96	26.96	25.96	25.74	25.50	23.37	25.92	24.47	25.00
September	30.88	30.90	29.91	30.45	31.90	27.96	30.97	29.96	28.89	28.50	24.92	29.84	28.59	28.02
October	31.89	30.99	31.01	31.56	31.94	29.90	31.97	31.95	30.84	30.37	29.69	31.48	30.66	30.01
November	32.86	32.99	32.77	33.47	33.95	31.71	32.97	32.92	32.57	31.10	30.95	32.39	31.22	30.48
December	32.84	34.00	33.86	33.00	35.15	32.51	33.96	33.91	32.70	31.10	30.17	32.84	32.13	30.83
1940														
January	35.63	35.52	35.38	34.49	36.49	34.36	36.47	34.93	32.63	33.30	31.62	34.35	33.54	32.45
February	31.83	32.47	32.00	31.00	31.98	30.82	32.99	31.53	30.74	30.30	30.32	31.48	31.22	30.84
March	30.83	31.48	31.49	30.46	--	30.65	32.52	31.90	29.85	30.00	28.96	30.92	30.68	30.16
April	29.76	30.87	30.48	29.83	--	--	31.98	29.99	--	30.00	28.41	29.44	30.18	29.54
May	28.68	29.39	30.01	28.45	--	28.86	30.98	29.98	29.25	28.80	28.20	28.97	--	29.03
June	28.49	29.93	29.48	29.00	29.98	28.90	29.99	28.98	28.99	28.70	27.20	28.93	29.12	28.21

1939	No.16	No.17	No.18	No.19	No.20	No.21	No.22	No.24	No.25	No.26	No.27	No.28	No.29
January		26.00	27.50	26.65	26.12	26.21	27.79	26.10	25.00	--	--	25.19	26.50
February		26.00	26.70	25.84	25.94	26.07	27.74	25.90	25.00	--	--	26.01	26.50
March		24.00	23.90	23.83	23.75	23.72	24.03	23.30	23.00	--	24.50	23.06	23.90
April		22.20	23.70	22.06	21.79	22.08	22.97	21.90	23.00	--	24.38	21.04	22.20
May		22.10	24.70	22.94	22.60	22.84	24.93	22.20	23.00	--	24.99	22.02	24.10
June		24.00	24.70	24.13	23.31	24.01	24.93	23.50	22.83	--	24.37	23.00	24.00
July		23.00	25.10	24.03	23.03	23.28	24.90	22.80	23.00	--	24.99	23.70	23.80
August		23.90	26.20	24.04	22.99	23.39	25.92	23.00	23.02	23.10	25.41	23.00	24.40
September		26.75	28.90	27.62	27.02	27.43	29.90	27.10	26.00	26.50	30.06	26.85	27.40
October		28.75	30.60	29.73	29.05	28.99	31.82	28.90	28.00	29.00	31.49	28.03	29.40
November		30.75	31.20	30.48	29.56	29.64	32.75	29.40	30.00	30.00	32.23	28.99	30.00
December		30.50	32.40	30.65	29.34	30.14	33.66	30.00	30.00	32.00	33.49	29.85	30.21
1940													
January		32.50	34.50	31.98	31.70	31.48	33.72	31.60	30.96	32.86	34.91	31.89	32.24
February		30.50	32.04	30.43	29.16	29.94	32.77	30.10	29.52	29.91	31.48	30.03	30.49
March		29.25	30.60	28.93	28.23	29.14	31.80	29.30	28.39	28.80	31.00	--	29.38
April		28.75	30.70	28.82	28.26	28.36	29.97	28.90	27.47	28.20	30.00	--	28.93
May		28.25	29.80	28.83	--	27.69	29.88	27.94	26.45	27.19	29.00	28.29	28.31
June		27.25	28.90	27.56	--	27.50	29.80	27.64	27.00	28.80	29.00	28.62	28.50

Not available

APPENDIX E - Prices Paid for All Butterfat, West Central Minnesota - 1939-1940.

1939	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	No.10	No.11	No.12	No.14	No.15
January	28.79	27.98	27.78	27.97	27.96	27.50	28.89	27.90	27.34	25.35	26.29	27.95	26.45	26.76
February	27.82	27.51	27.52	26.50	27.96	26.64	27.93	26.96	26.71	25.16	26.23	26.53	25.62	26.02
March	24.74	23.78	23.96	23.77	24.94	23.70	25.77	23.94	24.69	23.06	22.34	23.93	23.64	23.84
April	23.73	23.66	23.77	23.86	23.92	22.47	24.92	23.86	23.69	22.68	22.55	--	23.01	22.14
May	24.44	24.30	24.78	24.15	24.78	23.72	25.51	24.66	24.39	22.63	22.87	23.77	24.13	23.48
June	24.45	24.73	25.26	24.03	25.70	23.78	24.36	24.62	25.13	23.72	22.28	24.14	24.09	24.26
July	25.34	24.75	25.19	24.44	24.66	22.82	25.23	24.54	24.99	23.59	22.27	24.02	23.91	23.36
August	25.36	26.18	25.24	25.50	25.72	22.83	26.20	25.53	24.99	24.33	22.40	25.28	24.74	24.39
September	30.26	30.60	29.66	29.99	31.74	26.68	30.29	29.47	28.16	27.63	24.63	29.11	28.62	27.02
October	31.66	30.31	30.97	31.41	31.89	29.17	31.67	31.75	30.43	29.58	28.92	31.33	30.85	29.70
November	32.76	32.93	32.62	33.41	33.94	31.34	32.80	32.85	32.36	30.92	30.78	32.38	31.30	30.44
December	32.73	34.00	33.84	32.94	35.13	32.19	33.85	33.82	32.45	30.90	30.03	32.83	32.27	30.72
1940														
January	35.56	35.51	35.37	34.46	36.49	34.17	36.43	34.89	32.50	32.93	31.57	34.35	33.68	32.38
February	31.83	32.51	31.98	31.00	31.94	30.70	32.91	31.95	30.64	30.34	30.26	31.48	31.39	30.77
March	30.83	31.48	31.48	30.42	--	30.51	32.44	31.85	29.76	29.81	28.89	30.92	30.82	30.09
April	29.76	30.90	30.43	29.74	--	29.19	31.73	29.92	--	29.68	27.99	29.34	30.33	29.32
May	28.68	29.42	29.86	28.19	--	28.07	30.72	29.86	28.79	28.41	27.63	28.83	--	28.78
June	28.50	29.77	29.22	28.62	29.78	27.71	29.52	28.72	28.37	28.22	26.19	28.64	29.05	27.57

1939	No.16	No.17	No.18	No.19	No.20	No.21	No.22	No.24	No.25	No.26	No.27	No.28	No.29
January	29.64	25.81	27.33	26.34	26.01	26.45	27.63	26.03	24.81	--	27.79	25.41	27.50
February	27.85	25.72	26.51	25.59	25.90	26.33	27.62	25.90	24.78	--	27.75	25.95	27.46
March	25.00	22.96	23.58	23.47	23.37	23.91	23.92	23.16	22.73	--	24.13	22.97	24.81
April	23.86	21.63	23.30	21.76	21.64	22.27	22.80	21.70	21.29	--	23.93	20.98	23.22
May	24.93	21.58	23.90	22.27	22.02	22.56	24.42	21.77	21.19	--	24.34	21.87	23.72
June	24.72	23.13	23.68	23.30	23.14	23.38	24.41	22.86	22.11	--	23.58	22.53	24.25
July	25.50	22.23	23.84	22.96	21.69	22.68	24.37	22.20	22.04	--	24.10	23.08	24.10
August	26.00	23.07	24.94	23.04	22.30	22.84	25.21	22.35	22.19	22.79	24.56	22.55	24.85
September	29.63	25.80	27.68	26.40	25.61	26.80	29.12	26.04	24.85	26.38	28.87	26.25	27.83
October	30.91	28.41	29.88	29.25	28.72	29.30	31.46	28.56	27.92	28.28	31.01	27.88	30.52
November	32.89	29.95	30.79	30.25	29.40	30.16	32.57	29.33	30.78	29.45	31.99	29.05	31.66
December	33.81	30.00	32.15	30.40	29.11	30.55	33.42	29.89	29.26	30.97	33.12	29.90	31.52
1940													
January	35.71	31.83	34.26	31.78	31.64	31.96	33.65	31.61	30.95	32.87	34.61	31.92	33.28
February	32.93	29.82	31.80	30.23	28.98	30.39	32.69	29.94	29.53	29.96	31.27	30.07	31.53
March	31.91	28.89	30.46	28.76	28.02	29.59	31.69	29.20	28.40	28.87	30.80	--	30.44
April	30.77	28.10	30.24	28.59	27.87	28.78	29.80	28.55	27.48	28.31	29.51	--	29.96
May	30.16	27.48	29.34	28.47	--	28.09	29.54	27.47	26.36	27.28	28.37	28.30	29.20
June	--	26.21	28.08	26.97	--	27.52	29.30	26.91	--	27.70	28.23	--	34.50